

## Appendix AA: Monitoring of Sage-Grouse and Sagebrush Habitats

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## Monitoring of Sage-grouse and Sagebrush Habitats

### Background

On March 5, 2010 the 12-Month Findings for Petitions to List the greater sage-grouse (*Centrocercus urophasianus*) as Threatened or Endangered were posted as a Federal Register notice (75 FR 13910 14014). This notice stated:

“...the information collected by BLM could not be used to make broad generalizations about the status of rangelands and management actions. There was a lack of consistency across the range in how questions were interpreted and answered for the data call, which limited our ability to use the results to understand habitat conditions for sage-grouse on BLM lands. For example, one question asked about the number of acres of land within sage-grouse habitat that was meeting rangeland health standards. Field offices in more than three States conducted the rangeland health assessments, and reported landscape conditions at different scales (Sell 2009, pers. comm.). In addition, the BLM data call reported information at a different scale than was used for their landscape mapping (District or project level versus national scale) (Buckner 2009b, pers. comm.).”

Given the degree of uncertainty associated with managing natural resources, adaptive management approaches that include rigorous monitoring protocols to support them are essential if conservation goals are to be realized (Walters 1986, Burgman et al. 2005, Stankey et al. 2005, Turner 2005, Lyons et al. 2008). Recent efforts to develop range-wide policy and conservation measures for sage-grouse have emphasized the importance of improving monitoring efforts on both sage-grouse distribution and population trends, as well as the habitat they depend on (Wambolt et al. 2002, Connelly et al. 2003, Stiver et al. 2006, Reese and Boyer 2007, Connelly et al. 2011). Connelly et al. (2003) and Stiver et al. (2010) identified the need to assess and monitor sage-grouse habitats based on habitat characterization that should follow habitat selection processes identified by Johnson (1980). These processes identify four selection orders: (1) rangewide, (2) physical and geographic range of populations, (3) physical and geographic range within home ranges, and (4) physical and geographic areas within seasonal ranges to meet the life requisites of sage-grouse. These four habitat selection orders each have unique habitat indicators that should be assessed and monitored to properly evaluate sage-grouse habitats and relate those habitat indicators back to sage-grouse populations.

Monitoring tied to Resource Management Plan (RMP) decisions has two parts: (1) implementation monitoring (implementation of decisions, waivers, modifications, etc.), and (2) effectiveness monitoring. Through effectiveness monitoring, BLM can answer questions about how our decisions and actions impact habitat. Understanding the effectiveness and validating results of RMPs and management decisions is an important part of BLM measuring its performance under the Government Performance Results Act. For example, riparian condition is a primary measure for RMP effectiveness (see WO IM 2010-101). Monitoring that is applicable for evaluating management effectiveness can also be used to address a number of other critical habitat variables (e.g., location, condition, habitat conversion, size of patches, number of patches, species composition, connectivity and linkage, etc.). Ideally, monitoring attributes of

sage-grouse habitat and sage-grouse populations will allow linking real or potential habitat changes (from both natural events and management actions) to vital rates of sage-grouse populations (Stiver et al. 2006, Naugle and Walker 2007). These conclusions will enable managers to identify indicators associated with population change across large landscapes and to ameliorate negative effects with appropriate conservation actions (Burgman et al. 2005, Turner 2005).

#### Sage-Grouse Habitat Assessment Framework

In August 2010, the Sage-Grouse Habitat Assessment Framework (HAF): Multi-scale Habitat Assessment Tool was completed (Stiver et al. 2010). The HAF provides policy makers, resource managers, and natural resource specialists a comprehensive framework for sage grouse specific habitat assessments within sagebrush ecosystems. Assessment and monitoring of sage-grouse habitat is scale dependent. The HAF provides consistent indicators, metric descriptions, and habitat suitability characteristics for each of these scales specific to sage-grouse. It also provides consistent terminology so that biologists, other resource specialists, and managers from a wide range of agencies can address sage-grouse habitats. Monitoring inappropriate indicators for various scales can result in monitoring results that cannot correctly evaluate sage-grouse habitats and can misinform management of the effectiveness of land use plan decisions and activity level management actions.

#### BLM Assessment, Inventory, and Monitoring Strategy

The BLM Assessment, Inventory, and Monitoring (AIM) Strategy (Toevs et al. 2011) was completed in 2011 (BLM IB 2012-080) and describes a vision for integrated, cross-program assessment, inventory, and monitoring of resources at multiple scales of management. Following the AIM Strategy, the BLM is modernizing its resource monitoring approach to more efficiently and effectively meet local, regional, and national resource information needs. The AIM Strategy provides a process for the BLM to collect quantitative information on the condition, trend, amount, location, and spatial pattern of natural resources on the public lands. Each AIM-Monitoring survey, at any scale of inquiry (from the plot level to westwide deployments), uses a set of core indicators, standardized field methods, remote sensing, and a statistically valid study design to provide nationally consistent and scientifically defensible information to determine condition (e.g., rangeland health) and trend on public lands.

The National-scale deployment of AIM (i.e. Landscape Monitoring Framework [LMF]) commenced in 2011 with the collection of 1,000 plots of field-collected monitoring data across the Western U.S. The LMF will add approximately 1,000 new plots per year on non-forested public rangeland West-wide, plus an additional 1,000 plots per year in greater sage-grouse priority habitats. These national core data sets will be integrated with locally collected, project level, core data and remote sensing data to determine the condition and trend of sage-grouse habitats and the effectiveness of BLM management actions. This will be used to address threats and stressors, restore priority habitats, and maintain spatial connectivity at multiple scales of inquiry (from plots to landscapes and regions). Further, these multi-scale data will provide

information to determine long-term achievement of planning goals and objectives, analyze cumulative effects, and serve as the basis for adaptive management actions. A critical element of greater sage-grouse monitoring will be the production of an annual public report summarizing the broad scale condition and trend of priority habitats. Analysis of condition and trend reports will adaptively feed back into the monitoring process and will be refined as necessary. Additional site- or population-scale monitoring or habitat assessments, specific to greater sage-grouse needs, may be implemented when necessary through the Sage-Grouse HAF to answer specific local management questions or refine adaptive management needs that are not addressed by the AIM-Monitoring core indicators.

### Implementation

The standardization of monitoring methods and implementation of a defensible monitoring approach (within and across jurisdictions) is vital if BLM and other conservation partners are to use the resulting information to guide implementation of conservation activities. Monitoring strategies for sage-grouse habitat and populations must be collaborative, as habitat occurs across jurisdictional boundaries (52% BLM, 31% private, 8% USFS, 5% state, 4% tribal and other Federal; 75 FR 13910), and because state fish and wildlife agencies have primary responsibility for population level management of wildlife, including population monitoring. Population efforts therefore will continue to be conducted in partnership with state fish and wildlife agencies. The BLM will coordinate our multiple internal, habitat-based protocols among jurisdictions, as feasible, to provide large scale data sets to understand trends in sagebrush ecosystems.

Implementation policy directing use of the HAF, and the HAF in conjunction with AIM-Monitoring in addition to other guidance in the BLM National Greater Sage-Grouse Land Use Planning Strategy will be necessary to provide a framework for consistent approaches to sage-grouse habitat condition and trend monitoring across planning units and jurisdictions. This implementation policy will be developed by BLM in cooperation with our conservation partners.

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